

What is claimed is:

1 1. A glucose sensing device for implantation within subcutaneous tissue of an
2 animal body, the glucose sensing device comprising:
3 a first chamber containing first magnetic particles and a first hydrocolloid solution
4 wherein the first magnetic particles are dispersed in the first hydrocolloid solution and
5 wherein glucose within the animal body may enter and exit the first chamber; and
6 a reference chamber containing second magnetic particles and a second
7 hydrocolloid solution wherein the second magnetic particles are dispersed in the second
8 hydrocolloid solution.

1 2. The glucose sensing device of claim 1 wherein the first and second
2 hydrocolloid solution is a ConA-dextran hydrocolloid.

1 3. The glucose sensing device of claim 1 wherein the first and second
2 magnetic particles are amine-terminated particles.

1 4. The glucose sensing device of claim 1 wherein the amine-terminated
2 particles having a mean diameter of about 1 μm .

1 5. The glucose sensing device of claim 1 wherein the first and second
2 magnetic particles include at least one rare earth element.

1 6. The glucose sensing device of claim 5 wherein the at least one rare earth
2 element is selected from the group consisting of neodymium and samarium.

1 7. The glucose sensing device of claim 1 wherein the first and second
2 magnetic particles are selected from the group consisting of neodymium, samarium,
3 neodymium-iron-boron, samarium-cobalt, iron, permalloy, superpermalloy, cobalt,
4 nickel, steel, and alnico.

1 8. The glucose sensing device of claim 1 wherein the first and second
2 magnetic particles include a ferromagnetic material.

1 9. The glucose sensing device of claim 1 wherein the viscosity of the first
2 hydrocolloid solution changes in response to the presence of glucose.

1 10. A glucose sensing device for implantation within subcutaneous tissue of
2 an animal body, the glucose sensing device comprising:
3 a first chamber containing first magnetic particles and a hydrocolloid solution
4 wherein the first magnetic particles are dispersed in the hydrocolloid solution and
5 wherein glucose within the animal body may enter and exit the first chamber; and
6 a reference chamber containing second magnetic particles and a reference
7 solution wherein the second magnetic particles are dispersed in the reference solution.

1 11. The glucose sensing device of claim 10 wherein the reference solution
2 includes a known viscosity.

1 12. The glucose sensing device of claim 10 wherein the reference solution
2 includes a constant viscosity.

1 13. The glucose sensing device of claim 10 wherein the reference solution
2 includes a known viscosity.

1 14. The glucose sensing device of claim 10 wherein the reference solution
2 includes oil or alcohol compounds.

1 15. The glucose sensing device of claim 10 wherein the hydrocolloid solution
2 is a ConA-dextran hydrocolloid.

1 16. The glucose sensing device of claim 10 wherein the first magnetic
2 particles are amine-terminated particles.

1 17. The glucose sensing device of claim 10 wherein the amine-terminated
2 particles having a mean diameter of about 1 μm .

1 18. The glucose sensing device of claim 10 wherein the first magnetic
2 particles include at least one rare earth element.

1 19. The glucose sensing device of claim 10 wherein the first magnetic
2 particles a ferromagnetic material.

1 20. The glucose sensing device of claim 10 wherein the viscosity of the first
2 hydrocolloid solution changes in response to the presence of glucose.